

# Comparisons of Job Characteristics

Focus Occupation: **Chemical Technicians (19-4031)**

Associated Occupation: **Chemists (19-2031)**

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|    |  |
|----|--|
| << | Focus occupation element is much lower             |
| <  | Focus occupation element is lower                  |
| 0  | Focus occupation element is at a similar level     |
| >  | Focus occupation element is at a higher level      |
| >> | Focus occupation element is at a much higher level |

## Knowledge

Similarity of Focus Occupation to Associated Occupation: 94

Focus Occupation: Chemical Technicians (19-4031)

Associated Occupation: Chemists (19-2031)

| Associated Occupation's Key Knowledge Elements | Average Rating, All Occupations | Associated Occupation's Rating | Focus Occupation's Rating |    | Evaluation of Focus Occupation                      |
|--|---------------------------------|--------------------------------|---------------------------|----|---|
| Chemistry                                      | 4.8                             | 21.8                           | 18.6                      | <  | Expanded education and/or training may be required  |
| Mathematics                                    | 9.2                             | 17.0                           | 14.6                      | <  | Expanded education and/or training may be required  |
| Computers and Electronics                      | 8.4                             | 13.6                           | 14.7                      | 0  | Current knowledge level may be sufficient           |
| Production and Processing                      | 6.0                             | 11.3                           | 8.5                       | << | Extensive education and/or training may be required |
| Physics  | 4.3                             | 9.1                            | 9.6                       | 0  | Current knowledge level may be sufficient           |

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Skills

Similarity of Focus Occupation to Associated Occupation: 92

Focus Occupation: Chemical Technicians (19-4031)

Associated Occupation: Chemists (19-2031)

| Associated Occupation's Key Skills Elements | Average Rating, All Occupations | Associated Occupation's Rating | Focus Occupation's Rating |    | Evaluation of Focus Occupation                               |
|---|---------------------------------|--------------------------------|---------------------------|----|--|
| Science                                     | 4.5                             | 17.3                           | 13.8                      | << | Extensive development of skills in this area may be required |
| Reading Comprehension                       | 10.7                            | 15.7                           | 12.8                      | <  | A higher skill level may be required                         |
| Complex Problem Solving                     | 9.1                             | 12.3                           | 9.3                       | << | Extensive development of skills in this area may be required |
| Mathematics                                 | 6.2                             | 11.4                           | 9.4                       | <  | A higher skill level may be required                         |

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Abilities

Similarity of Focus Occupation to Associated Occupation: 96

Focus Occupation: Chemical Technicians (19-4031)

Associated Occupation: Chemists (19-2031)

| Associated Occupation's Key Abilities Elements | Average Rating, All Occupations | Associated Occupation's Rating | Focus Occupation's Rating | Evaluation of Focus Occupation |  |
|--|---------------------------------|--------------------------------|---------------------------|--------------------------------|--|
| Oral Comprehension                             | 12.5                            | 15.9                           | 12.2                      | <<                             | Extensive improvement in abilities may be required |
| Written Comprehension                          | 11.0                            | 14.9                           | 13.5                      | <                              | Some improvement in abilities may be required      |
| Inductive Reasoning                            | 10.2                            | 13.8                           | 12.8                      | 0                              | Current ability level may be sufficient            |
| Category Flexibility                           | 9.0                             | 13.6                           | 11.6                      | <                              | Some improvement in abilities may be required      |
| Deductive Reasoning                            | 10.6                            | 13.6                           | 12.8                      | 0                              | Current ability level may be sufficient            |
| Near Vision                                    | 11.1                            | 13.5                           | 12.9                      | 0                              | Current ability level may be sufficient            |
| Information Ordering                           | 9.9                             | 12.8                           | 12.0                      | 0                              | Current ability level may be sufficient            |
| Mathematical Reasoning                         | 6.3                             | 12.2                           | 8.8                       | <<                             | Extensive improvement in abilities may be required |
| Number Facility                                | 6.3                             | 11.9                           | 8.6                       | <<                             | Extensive improvement in abilities may be required |
| Flexibility of Closure                         | 7.8                             | 10.7                           | 8.4                       | <                              | Some improvement in abilities may be required      |
| Visual Color Discrimination                    | 6.4                             | 9.6                            | 8.6                       | <                              | Some improvement in abilities may be required      |
| Memorization                                   | 5.6                             | 7.9                            | 6.7                       | <                              | Some improvement in abilities may be required      |

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Activities that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 98

Focus Occupation: Chemical Technicians (19-4031)

Associated Occupation: Chemists (19-2031)

| Work Activities   | Exclusivity of Activity |
|---|-------------------------|
| Adhere to safety procedures   | 12                      |
| Analyze chemical experimental, test, or analysis data or findings   | 69                      |
| Analyze scientific research data or investigative findings          | 27                      |
| Collect scientific or technical data                                | 30                      |
| Collect statistical data  | 47                      |
| Communicate technical information                                   | 4                       |
| Conduct analyses or tests of organic compounds                      | 71                      |
| Conduct laboratory research or experiments                          | 57                      |
| Conduct standardized qualitative laboratory analyses                | 62                      |
| Conduct standardized quantitative laboratory analyses               | 62                      |
| Design equipment, apparatus, or instruments for scientific research | 87                      |

|   |    |
|---|----|
| Design manufacturing processes or methods                               | 77 |
| Develop new chemical processing techniques or formulas                  | 95 |
| Develop or maintain databases   | 30 |
| Develop plans for programs or projects                                  | 31 |
| Develop tables depicting data   | 33 |
| Direct and coordinate activities of workers or staff                    | 3  |
| Evaluate manufacturing or processing systems                            | 68 |
| Explain complex mathematical information                                | 30 |
| Follow safe waste disposal procedures                                   | 50 |
| Maintain records, reports, or files                                     | 5  |
| Mix paint, ingredients, or chemicals, according to specifications       | 35 |
| Monitor the chemical action of substances                               | 95 |
| Operate specialized equipment in chemical laboratory                    | 95 |
| Perform statistical analysis in physical science or geological research | 71 |
| Prepare reports   | 8  |
| Prepare technical reports or related documentation                      | 22 |
| Record test results, test procedures, or inspection data                | 48 |
| Understand properties of gases or liquids                               | 78 |
| Use chemical processing emergency procedures                            | 84 |
| Use chemical testing or analysis procedures                             | 54 |
| Use computers to enter, access or retrieve data                         | 3  |
| Use hazardous materials information                                     | 35 |
| Use knowledge of investigation techniques                               | 16 |
| Use knowledge of metric system  | 39 |
| Use laboratory equipment  | 60 |
| Use mathematical or statistical methods to identify or analyze problems | 30 |
| Use oral or written communication techniques                            | 1  |
| Use physical science research techniques                                | 68 |
| Use quantitative research methods                                       | 35 |
| Use relational database software  | 26 |
| Use scientific research methodology                                     | 21 |
| Use spreadsheet software  | 18 |
| Use word processing or desktop publishing software                      | 17 |

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Tools and Technologies that Both Occupations Have in Common

Similarity of Focus  
Occupation to Associated  
Occupation: 84

**Focus Occupation: Chemical Technicians (19-4031)**  
**Associated Occupation: Chemists (19-2031)**

| Tools and Technologies                                | Exclusivity |
|---|-------------|
| Business function specific software                   | 1           |
| Chemical evaluation instruments and supplies          | 10          |
| Chromatographic measuring instruments and accessories | 16          |

|   |    |
|---|----|
| Computers   | 1  |
| Content authoring and editing software  | 1  |
| Data management and query software  | 1  |
| Electrical measuring and testing equipment  | 7  |
| Electrochemical measuring instruments and accessories                                     | 9  |
| Fluid mechanics equipment   | 11 |
| Gas analyzers and monitors  | 10 |
| General laboratory glassware and plasticware and supplies                                 | 13 |
| Geophysical and geotechnical instruments  | 23 |
| Indicating and recording instruments  | 2  |
| Industry specific software  | 1  |
| Laboratory baths  | 24 |
| Laboratory blending and dispersing and homogenizing equipment and supplies                | 27 |
| Laboratory boring and grinding and cutting and crushing and pressing equipment            | 27 |
| Laboratory centrifuges and accessories  | 13 |
| Laboratory cooling equipment  | 25 |
| Laboratory decanting and distilling and evaporating and extracting equipment and supplies | 19 |
| Laboratory electron and solid state physics equipment                                     | 29 |
| Laboratory enclosures and accessories   | 17 |
| Laboratory furnaces and accessories   | 26 |
| Laboratory heating and drying equipment   | 13 |
| Laboratory mixing and stirring and shaking equipment and supplies                         | 19 |
| Laboratory ovens and accessories  | 15 |
| Laboratory pumps and tubing   | 23 |
| Laboratory washing and cleaning equipment   | 35 |
| Light and wave generating and measuring equipment   | 4  |
| Liquid and gas flow measuring and observing instruments                                   | 15 |
| Pharmaceutical industry machinery and equipment and supplies                              | 31 |
| Pipettes and liquid handling equipment and supplies                                       | 16 |
| Respiratory protection  | 6  |
| Spectroscopic equipment   | 10 |
| Temperature and heat measuring instruments  | 6  |
| Viewing and observing instruments and accessories   | 4  |
| Weight measuring instruments  | 7  |

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.